

THE SPIDER GENERA *CHRYSO* AND
TIDARREN IN AMERICA
 (ARANEÆ: THERIDIIDÆ)

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This revision of two genera of comb-footed spiders, *Chryso* and *Tidarren*, was made possible through the generous loan by Dr. W. J. Gertsch of material from the collection of the American Museum of Natural History. Dr. Gertsch not only supplied the majority of specimens, but also gave valuable advice and read the manuscript. I want to extend my sincere thanks to him and also to Dr. A. M. Chickering of Albion College, who loaned large collections from Panama, Dr. P. J. Darlington, Jr. for specimens from the Museum of Comparative Zoology, Mrs. D. Frizzell (Dr. Harriet Exline) for *Tidarren* from South America, and my wife who helped with the paper.

The types of the new species have been deposited in the American Museum of Natural History, with the exception of *Chryso vallensis*, the holotype of which is in the Museum of Comparative Zoology. Paratypes of this species are in the American Museum of Natural History.

Chryso O. P.—Cambridge

Chryso O. P.—Cambridge, 1882, Proc. Zool. Soc. London, p. 429.

Type species: *Chryso albomaculata* O. P.—Cambridge.

Small to medium sized theridiid spiders (1 to 5 mm. total length.) Carapace slightly longer than wide. Anterior eye row slightly procurved, posterior row straight, or slightly pro or recurved. Anterior median eyes separated by their diameter or more, by less from laterals. Posterior median eyes usually slightly closer to each other than to laterals. Eyes subequal in size or anterior medians slightly larger or smaller than others. Shape of carapace and clypeus quite variable. Length of chelicerae about equal to height of carapace. Anterior margin of chelicerae armed with two large teeth (sometimes difficult to see). Sternum truncate between posterior coxae, which are separated by their diameter. First legs longest; each patella with a retrolateral tubercle. A tarsal comb on fourth tarsus. Abdomen longer than

wide or high, extending beyond spinnerets, and with characteristic furrows or stripes on sides (figs. 10, 14, 16, 18, 19). Colulus absent.

Epigynum a more or less sclerotized plate, the openings indistinct. The internal genitalia with sacs (figs. 25, 26), or short connecting ducts (which do not correspond in length to the embolus of the male palpus). One pair of seminal receptacles present. Male palpus with a radix (R in fig. 4). Base of embolus (E) seemingly curves the same direction as in *Achaearanea*. Its length is supported by the radix, its tip by the radix and conductor (C). The only indication of the paracymbial hook is a depression in the alveolus of the cymbium. The hæmatodocha attaches the bulb to only the most proximal portion of the alveolus of the cymbium (Y).

Chryso is probably related to *Achaearanea*, but differs in having a radix in the palpus. The shape of the abdomen, its lateral furrows, the structure of the internal female genitalia and the male palpi differentiate *Chryso* from other related genera, including *Theridion*.

Chryso is found only in America; no species have been described from other parts of the world. While there are a number of species in northern South America and Central America, only one, *C. albomaculata*, is found in North America. The genitalia of the different species are all quite similar, and all are of about the same size. There are, however, striking differences in coloration between many sympatric species.

The following species have been described in *Chryso*, but do not belong to it:

C. nigripalpus Banks, 1929, Bull. Mus. Comp. Zool., 69: 85, figs. 46, 72 (♀) is *Coleosoma flavipes* O. P.—Cambridge. New synonymy.

C. nigrosternum Keyserling, 1891, Die Spinnen Amerikas, Brasilianische Spinnen, p. 206, pl. 7, fig. 148 (♂ ♀), probably belongs in *Achaearanea*.

C. perplexum Keyserling, 1886, *ibid.*, Theridiidæ 2: 242. pl. 20, fig. 296 (♂).

C. quadratum O. P.—Cambridge, 1882, Proc. Zool. Soc. London, p. 430; pl. 30, fig. 7 (♂ ♀) found in Ceylon and Sumatra.

Chryso splendida Banks, 1898, Proc. California Acad. Sci., ser. 3, 1: 237, pl. 14, fig. 13 (♀), is *Achaearanea vittata* (O. P.—Cambridge), 1894 (*Theridion cambridgei* Petrunkevitch, 1911). New synonymy.

Chryso albomaculata O. P.—Cambridge

Figs. 1-4, 18, 19, 25-27

Chryso albomaculata O. P.—Cambridge, 1882, Proc. Zool. Soc. London, p. 429, fig. 6 (♂ ♀). Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, 1: 152, pl. 7, fig. 94 (♂ ♀). Marx, 1890, Proc. U. S. Natl. Mus., 12: 523. Banks, 1904, Proc. Acad. Nat. Sci. Philadelphia, 56: 128; 1910, Bull. U. S. Natl. Mus., 72: 20. Chickering, 1936, Trans. Amer. Micros. Soc., 55: 451. Chamberlin and Ivie, 1944, Bull. Univ. Utah, biol. ser., 8(5): 37. Bryant, 1948, Bull. Mus. Comp. Zool., 100: 382. (probably not Bryant, 1940, Bull. Mus. Comp. Zool., 86: 311, figs. 78, 81, ♂ ♀).

Theridion albomaculatum, Simon, 1894, Histoire naturelle des Araignées, 1: 535. Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 190. Bishop and Crosby, 1926, Jour. Elisha Mitchell Sci. Soc., 41: 181. Roewer, 1942, Katalog der Araneæ, 1: 501.

Steatoda albomaculata, F. O. P.—Cambridge, 1902, Biologia Centrali-Americana, Araneidea, 2: 385, pl. 36, figs. 18, 19 (♂ ♀).

Steatoda voluta F. O. P.—Cambridge, 1902, ibid., 2: 386, pl. 36, fig. 20 (♂). New synonymy.

Theridion volutum, Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 210. Roewer, 1942, Katalog der Araneæ, 1: 500. New synonymy.

Achaea luculenta Bryant, 1940, Bull. Mus. Comp. Zool., 86: 310, figs. 83, 84 (♀). New synonymy.

Chryso davisii Bryant, 1945, Trans. Connecticut Acad. Sci., 36: 202, figs. 4, 11 (♂). Archer, 1946, Pap. Alabama Mus. Nat. Hist., 22: 55. New synonymy.

FEMALE: Carapace, sternum orange, eye region and area behind eyes black. Legs orange-white, distal segments darker; anterior and posterior sides darker. Palpi black. Abdomen orange-white, usually with a number of dorsal white spots and five lateral white spots. Posterior tip of abdomen black (figs. 18, 19). Archer (1946) indicates that live spiders are red, but their color fades rapidly in alcohol. Eye spacing variable. Posterior median eyes of a Florida specimen separated by one diameter, by one and one-third diameters from laterals. In others, eyes of posterior row equally spaced. Eyes subequal in size, sometimes anterior or posterior medians slightly smaller or larger than others. Height of clypeus equals two diameters of

anterior median eyes. First legs longest, second or fourth legs next in length. Epigynum an oval convex plate or variable shape (fig. 27). Seminal receptacles on dorsal surface of sclerotized sacs, (figs. 25, 26). Total length, 2.5-4.5 mm. A female from Bay County, Florida, measured total length, 2.7. Carapace 1.00 long, 0.85 wide, 0.32 high. First femur, 1.95; patella and tibia, 1.82; metatarsus, 1.52; tarsus, 0.63. Second patella and tibia, 1.06; third, 1.04; fourth, 1.24.

MALE: Coloration like that of female, white abdominal spots less distinct or absent. Eyes slightly farther apart. Large epigastric plate orange. Palpus quite variable in shape (figs. 1-3). Total length of males, 1.9 to 3.1 mm. A male from Bay County, Florida, measured total length, 2.4. Carapace, 1.10 long, 0.91 wide, 0.39 high. First femur, 2.00; patella and tibia, 1.93; metatarsus, 1.70; tarsus, 0.65. Second patella and tibia, 1.17; third, 0.78; fourth, 1.30.

Size, coloration, eye spacing and sizes, leg length and genitalia of this species vary greatly. None of these characters could be correlated with the geographic distribution. However, the variation in color seems greater in northern specimens, which sometimes lack abdominal spots and appear similar to *C. vexabilis*. Central American specimens all had abdominal spots and could be separated readily from *C. vexabilis*. Some individuals from Florida have the anterior median eyes slightly larger; others have the eyes subequal in size.

According to Archer (1946), this species makes webs "on under surfaces of leaves of hard-leaved shrubs" and occurs in open fields, on wooded edges and open woods. Bishop and Crosby (1926) found an egg sac under a *Liquidambar* leaf. It was "spherical, 2mm. in diameter, and composed of fine silk, tightly woven to form a firm tissue. It contained 23 eggs."

Type localities: Syntypes of *C. albomaculata* came from the Amazon, the male holotype of *Steatoda voluta* from Guatemala. The female holotype of *Achaa luculenta* came from Ciénaga de Zapata, Central Covadonga, Cuba, September 13, 1936 (Davenport) and the male holotype of *C. davisii* from Winter Park, Florida, April, 1934 (E. M. Davis). The first two are in the British Museum (Natural History) and the last two in the Museum of Comparative Zoology.

Records: NORTH CAROLINA: Carteret Co.: Boque Bank (R. D. Barnes). SOUTH CAROLINA: Charleston Co. GEORGIA: (Bishop and Crosby, 1926); Lowndes Co. FLORIDA: (Banks, 1904); Calhoun Co.; Bay Co.; Alachua Co.; Putnam Co.; Marion Co.;

Pasco Co.; Orange Co.; Sarasota Co. ALABAMA: (Archer, 1946). MISSISSIPPI: George Co. LOUISIANA: Grant Par. TEXAS: Newton Co. SAN LUIS POTOSÍ: Tamazunchale. NAYARIT: San Blas. HIDALGO: Chapulhuacán. COLIMA: Cuyutlán; Boca de Pascuales; Las Humedades Armería. GUERRERO: Lo Bajo. OAXACA: Soyaltepec. TABASCO: (F. O. P.—Cambridge, 1902). CAMPECHE: Campeche; San José. YUCATÁN: Chichén-Itzá; Colonia Yucatán. QUINTANA ROO: Cozumel. COSTA RICA: Cartago. PANAMA: Bocas del Toro; Summit; Arraiján. CUBA: Vega Alta; Santa Clara; Pinar del Río; Sierra de Anafe. HAITI: (Bryant, 1948). TRINIDAD: Gasparce. COLOMBIA: Turbaco.

Chryso vexabilis Keyserling. Figs. 5, 6, 23, 24

Chryso vexabilis Keyserling, 1884, Die Spinnen Amerikas, Theridiidæ, 1: 155, pl. 7, fig. 96 (♂ ♀). Banks, 1929, Bull. Mus. Comp. Zool., 69: 85.

Theridion vexabile, Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist. 29: 209. Mello-Leitão, 1941, An. Acad. Brasileira Cienc., 13: 250. Roewer, 1942, Katalog der Araneæ, 1: 500.

Chryso lyparus Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., 3(5): 35, pl. 10, fig. 84 (♀). New synonymy.

Theridion lyparum, Roewer, 1942, Katalog der Araneæ, 1: 494. New synonymy.

This species is very close to *C. albomaculata*. Both males and females differ from Central American *C. albomaculata* by the coloration of the abdomen, which is sooty black, gray or sometimes nearly white. No white spots are visible although there may be whitish (to reddish) areas on the anterior portion of the venter and the sides; one individual had a black spot on the posterior tip of the abdomen. The epigynum is a light area, quite variable, sometimes translucent. The internal genitalia differ from those of *C. albomaculata* in that the sacs are lobed behind and less sclerotized (fig. 23). The lobes may be touching. The contracted palpus is much like that of *C. albomaculata* except for slight differences in the tegulum (fig. 5). When expanded, the radix lacks the mesal flange and distal hook (fig. 6).

None of the specimens studied approached the total length given by Keyserling (4.7 mm.). Although Keyserling's other measurements and description agreed with specimens on hand, his key character, carapace much shorter than the fourth tibia, did not. This species is nevertheless considered to be Keyserling's and the longer fourth tibia the peculiarity of an individual specimen.

Type locality: Male and female types of *Chrysso vexabilis* from Nueva Granada, Colombia; female holotype of *C. lyparus* from Barro Colorado Island, Panama, in the University of Utah collection.

Records: PANAMA: Porto Bello; Old Panama City; El Valle; Summit; Frijoles; Barro Colorado Island; Madden Dam Forest; Pedro Miguel; Gamboa; Experimental Gardens; Boquete; Forest Reserve; Arraiján; Ft. Sherman; Chilibre.

***Chrysso huanuco*, new species. Figs. 20-22**

FEMALE: Carapace, sternum dark brown. Coxae, proximal portions of femora white; other segments and distal portions of femora brown. Abdomen dusky yellow with longitudinal dark gray band on dorsum and on venter (fig. 20). Epigastric area dark brown. Eyes small and subequal in size. Anterior median eyes separated by one and one-half diameters, one diameter from laterals. Posterior median eyes separated by one and one-half diameters, one and three-quarters diameters from laterals. Height of clypeus equals two diameters of anterior medians. Anterior lip of epigynum, anterior to a depression, which in turn is followed by a raised area (fig. 22). Internal genitalia (fig. 21) as in the preceding two species. Total length, 3.9 mm. Carapace, 1.20 long, 0.95 wide. First femur, 2.41; patella and tibia, 2.08; metatarsus, 1.97; tarsus, 0.77. Second patella and tibia, 1.35; third, 0.78; fourth, 1.41.

The coloration and small eyes differentiate this species from *C. albomaculata*.

Type locality: Female holotype from Tingo María, Huánuco, Peru, 670 m. (W. Weyrauch).

***Chrysso vallensis*, new species. Figs. 7, 8, 28, 29**

FEMALE: Carapace, sternum orange; region between anterior eyes, portions of clypeus dusky. Legs yellow, each with a pro and retrolateral black line; metatarsi and tarsi dusky. Abdomen gray with white and black spots (fig. 8), the latter so large in some specimens that they fuse so that whole posterior portion is black. Eyes subequal in size. Posterior eye row straight. Anterior median eyes separated by one and one-quarter diameters, one quarter diameter from laterals. Posterior median eyes separated by three-quarters diameters, a little more than one diameter from laterals. Height of clypeus equals one and one-half diameters of anterior medians. The epigynum (fig. 29) distinguishes this species from *C. diplosticha*. Total length, 1.8 to 2.4 mm. Total length of holotype, 2.3; carapace, 0.87 long; 0.69 wide. First femur, 1.30; patella and tibia, 1.36; metatarsus, 1.13; tarsus, 0.52. Second patella and tibia, 0.91; third, 0.55; fourth, 0.95.

MALE: Coloration and structure much like that of female. Abdomen nearly

all black in both males. Palpus (fig. 7) similar to that of *C. diplosticha* but differing in shape of radix and ectal hook. In one specimen, portions of ectal hook are hidden by embolus. Total length, 1.8 mm. Carapace, 0.94 long, 0.78 wide. First femur, 1.56; patella and tibia, 1.55; metatarsus, 1.35; tarsus, 0.52. Second patella and tibia, 0.99; third, 0.62; fourth, 1.08.

Type locality: Female holotype, male allotype, fourteen female paratypes and one male paratype from El Valle, Panama, July, 1936 (A. M. Chickering).

Chryso diplosticha Chamberlin and Ivie. Figs. 9, 30, 31

Chryso diplostichus Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., 3(5): 36, fig. 83 (♀).

Theridion diplostichum, Roewer, 1942, Katalog der Araneæ, 1: 491.

FEMALE: Similar in coloration to *C. vallensis*. Eyes large. Posterior median eyes separated by slightly more than one diameter, two-thirds diameter from laterals. Height of clypeus equals diameter of anterior median eyes. Epigynum (fig. 31) readily distinguishes this species from related ones. Total length, 2.0 to 2.9 mm. A specimen from Barro Colorado Island measured: total length, 2.7. Carapace, 0.88 long, 0.73 wide. First femur, 1.53; patella and tibia, 1.49; metatarsus, 1.21; tarsus, 0.52. Second patella and tibia, 0.91; third, 0.52; fourth, 0.97.

MALE: Clypeus as high as two diameters of anterior median eyes. Palpus illustrated by figure 9. Total length, 1.6 to 2.1 mm. A specimen from Barro Colorado Island measured: total length, 2.00. Carapace, 0.89 long, 0.68 wide. First femur, 1.53; patella and tibia, 1.44; metatarsus, 1.02; tarsus, 0.59. Second patella and tibia, 1.01; third, 0.56; fourth, 1.04.

Although the abdomen of females is like that of *C. vallensis* in structure, one specimen had a tail as in *C. indicifer*.

Type locality: Female holotype from Barro Colorado Island, Panama, in the University of Utah collection.

Records: PANAMA: Barro Colorado Island (many collections); Fort Davis; Porto Bello; Fort Randolph; Fort Sherman. PERU: Divisoria, Dept. of Huánuco (F. Woytkowski).

Chryso nigriceps Keyserling. Figs. 16, 32, 33

Chryso nigriceps Keyserling, 1884, Die Spinnen Amerikas, Theridiidæ, 1: 154, pl. 7, fig. 95 (♀).

Theridion keyserlingi Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 198 (new name for *C. nigriceps*, not *Theridion nigriceps* Keyserling, 1891). Mello-Leitão, 1941, An. Acad. Brasi-

leira Cienc., 13: 250. Roewer, 1942, Katalog der Araneæ, 1: 494.

FEMALE: Carapace, sternum light orange yellow; head region dusky to black; clypeus black. Palpi dark. Legs yellowish, distal ends of femora dusky, other segments slightly dusky. Abdomen with two white spots on each side, a large black spot on posterior end (fig. 16). Carapace wide in front, lower margin of clypeus projecting. Anterior median eyes slightly smaller than others and separated by one and one-half diameters, a little farther from laterals. Posterior median eyes separated by one diameter, one and one-third diameters from laterals. Height of clypeus equals four diameters of anterior median eyes. Epigynum illustrated by figure 33. Total length of a specimen from Ecuador, 3.5 mm. Carapace, 1.36 long, 1.16 wide. First femur, 2.72; patella and tibia, 2.25; metatarsus, 2.06; tarsus, 0.97. Second patella and tibia, 1.50; third, 0.98; fourth, 1.79.

Type locality: Female type from Santa Fé de Bogotá, Colombia.

Records: ECUADOR: Runtun Trail, Baños, 2000 m., Nov. 26, 1939 (F. M. Brown), 1 ♀.

Chrysso ecuadorensis, new species. Figs. 10, 38-39

FEMALE: Carapace, sternum dark brown. Coxæ, legs white; first tarsi brownish. Abdomen gray, black and white (fig. 10). Carapace low. Eyes small, subequal in size. Anterior medians separated by one and one-half diameters, two diameters from laterals. Posterior medians separated by one diameter, two and one-third diameters from laterals. Height of clypeus equals five diameters of anterior medians. Legs very long. Epigynum diagnostic, illustrated by figure 39. Total length, 4.7 mm. Carapace, 1.66 long, 1.20 wide. First femur, 4.5; patella and tibia, 3.6; metatarsus, 3.9; tarsus, 1.3. Second patella and tibia, 2.15; third, 1.10; fourth, 2.48.

Type locality: Female holotype and one paratype from Runtun Trail, Baños 2000 m., Ecuador, November 26, 1939 (F. M. Brown).

Chrysso indicifer Chamberlin and Ivie.

Figs. 11, 12, 17, 34, 35

Chrysso indicifer Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., 3(5): 36, figs. 82, 96 (♀).

Theridion indiciferum, Roewer, 1942, Katalog der Araneæ, 1: 494.

FEMALE: Carapace, sternum brown. Legs yellow-white. Abdomen gray, black and white (fig. 17). Eyes subequal in size. Posterior medians separated by two-thirds their diameter, three-quarters diameter from laterals. Height of clypeus equals one and one-half diameters of anterior medians.

Abdomen with a tail-like extension. Epigynum illustrated by figure 35. Total length of females, 2.5–3.5 mm. Total length of one specimen, 3.3. Carapace, 0.98 long, 0.73 wide. First femur, 1.95; patella and tibia, 1.82; metatarsus, 1.56; tarsus, 0.65. Second patella and tibia, 1.07; third, 0.65; fourth, 1.20.

MALE: Posterior median eyes three-quarters diameter apart, one diameter from laterals. Abdomen short (fig. 12). Palpus illustrated by figure 11. Total length, 2.00 mm. Carapace, 0.91 long, 0.72 wide. First femur, 1.82; patella and tibia, 1.64; metatarsus 1.56; tarsus, 0.63. Second patella and tibia, 1.15; third, 0.65; fourth, 1.24.

Type locality: Female holotype from Barro Colorado Island, Panama, in the University of Utah collection.

Records: PANAMA: Barro Colorado Island (many collections); Forest Reserve.

***Chryso sicki*, new species. Figs. 14, 36, 37**

FEMALE: Carapace and sternum orange-yellow. Legs, yellow-white. Abdomen white with some dusky pigment on dorsum, sides with white pigment spots. Two black spots on dorsum near posterior tip (fig. 14). Eyes subequal in size. Anterior eye row straight, posterior slightly recurved. Anterior medians separated by one diameter, less than one diameter from laterals. Posterior medians separated by one diameter, same distance from laterals. Height of clypeus equals three diameters of anterior median eyes. Epigynum (fig. 37) and internal genitalia (fig. 36) distinguish this species. Total length, 2.5 mm. Carapace, 0.84 long, 0.78 wide. First femur, 1.25; patella and tibia, 1.17; metatarsus, 0.91; tarsus, 0.59. Second patella and tibia, 0.77; third, 0.60; fourth, 0.82.

Type locality: Female holotype from Teresópolis, (Rio de Janeiro), Brazil, 1600–1800 m., March 16, 1946 (H. Sick).

Chryso sulcata (Keyserling). Fig. 13

Helvibis sulcata Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, 1: 175, pl. 8, fig. 106 (♂).

Chryso sulcata, Keyserling, 1886, *ibid.*, 2: 243.

Theridion sulcatum, Petrunkevitch, 1911, *Bul. Amer. Mus. Nat. Hist.*, 29: 207. Roewer, 1942, *Katalog der Araneæ*, 1: 499.

MALE: Carapace orange, area between anterior eyes dusky; dusky triangle (pointing toward chelicerae) on clypeus. Sternum orange with a central black spot. Legs orange. Abdomen yellow-white with a series of lateral and dorsal white spots. Spinnerets and posterior tip of abdomen black. Eyes subequal in size; anterior medians separated by one and one-quarter diameters, one-third diameter from laterals. Posterior medians three-quarters diameter from each other, two-thirds diameter from laterals. Height of

clypeus equals two diameters of anterior medians. Palpus (fig. 13) shows a mesal tooth, part of the median apophysis. Total length, 2.3 mm. Carapace, 1.00 long, 0.70 wide. First femur, 2.60; patella and tibia, 2.52; metatarsus, 2.21; tarsus, 0.65. Second patella and tibia, 1.54; third, 0.73; fourth, 1.45.

Keyserling's figure 106 shows the mesal tooth in the palpus. The measurements and descriptions agree with those given in the original description.

Type locality: Male holotype from Amazonas, Brazil (O. P.—Cambridge).

Record: PERU: San Martín: Bella Vista, Dec. 11, 1946 (J. C. Pallister), 1 ♂.

***Chryso mariaë*, new species. Fig. 15**

MALE: Sternum, carapace orange; dusky between anterior eyes. Legs orange-yellow. Abdomen yellow-white with white spots on sides and dorsum, several black spots above lateral white spots; posterior tip black. Carapace similar to that of *C. diplosticha*. Posterior eye row slightly recurved. Eyes subequal in size. Anterior medians separated by one diameter, one-fourth diameter from laterals. Posterior medians separated by one-half diameter, less than one diameter from laterals. Height of clypeus equals one and one-half diameters of anterior median eyes. Palpus (fig. 15) clearly differentiates this species from *C. diplosticha* and other related species. Total length, 2.2 mm. Carapace, 1.00 long, 0.74 wide. First femur, 2.09. Second patella and tibia, 1.17; third, 0.66; fourth, 1.28.

Type locality: Male holotype from Tingo María, Huánuco, Peru, October 21, 1946 (J. C. Pallister).

Chryso elegans (Taczanowski).

Argyrodes elegans Taczanowski, 1872, Horæ Soc. Ent. Rossicæ, 9: 118, pl. 5, fig. 11 (♀)*.

Chryso elegans, Keyserling, 1884, Die Spinnen Amerikas, Theridiidæ, 1: 151, p. 7, fig. 93 (♀). Mello-Leitão, 1948, An. Acad. Brasileira Cienc., 20: 156.

?*Steatoda elegans*, F. O. P.—Cambridge, 1902, Biologia Centrali-Americana, Araneidea, 2: 386.

Theridion elegans, Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 194. (not *T. elegans*, Blackwall, 1862).

Theridion emendatum Roewer, 1942, Katalog der Araneæ, 1: 492. (New name for *T. elegans* Taczanowski.)

* Reference not seen

FEMALE: Carapace, legs yellow. Abdomen light gray-brown with five to six white spots on each side, and a white dorsal band which narrows to a point posteriorly; posterior tip black. Eyes subequal in size, separated by their diameter, except for laterals which are touching, and anterior medians which are one-half their diameter from laterals. Total length, 3.1 mm. Carapace, 1.2 long, 1.0 wide. First femur, 2.7; patella and tibia, 2.6; metatarsus, 2.1; tarsus, 0.9. Second patella and tibia, 1.5; third, 0.9; fourth, 1.7.

(After Keyserling's description.)

Type locality: Female type from Uassa in French Guiana in the collection of the University of Warsaw, Poland.

Records: BRITISH GUIANA: Cane Grove (Mello-Leitão, 1948). GUATEMALA: (Keyserling, 1884).

Tidarren Chamberlin and Ivie

Tidarren Chamberlin and Ivie, 1934, Bull. Univ. Utah, biol. ser., 2(4): 4. Type species: *Theridion fordum* (= *sisyphoides* Walckenaer, not *fordum* Keyserling).

Theridiid spiders with females of medium size (3 to 9 mm.), but with minute males (less than 2 mm. total length). Female carapace longer than wide, highest near middle, narrow in front. Anterior eye row slightly procurved as seen from front, posterior row straight or slightly procurved as seen from above. Eyes subequal in size. Anterior medians separated by one diameter or slightly less, one-quarter to two-thirds diameter from laterals. Posterior medians separated by slightly more or less than one diameter, about one diameter from laterals. Clypeus as high as two to four diameters of anterior median eyes; lower border sometimes bulging and projecting. Dorsum of carapace with a characteristic pattern of dusky marks on yellowish background (fig. 42). Sternum slightly longer than wide, truncate between posterior coxæ, which are separated by their width; yellow to brown with a dark border whose inner margin has an irregular outline. First legs longest, fourth second in length, third shortest. Small tubercle on retrolateral face of each patella. A comb present on fourth tarsus. Abdomen higher than long, sometimes with a tubercle; resembling *Achæaranea* in markings, but female has a distinctive narrow white line between the spinnerets and the highest point of the dorsum, (figs. 41, 42). All species examined have some individuals dark, while others may be yellow-white with only faint indications of pattern. Colulus absent. Abdomen sometimes quite hairy. Epigynum with a protruding beak (figs. 44, 45, 47, 48), one pair of seminal receptacles present.

Males very small in size. Carapace hardly longer than wide, quite high. Eyes appear large, but are separated by about same distances as in female. Height of clypeus equals one and one-half to two diameters of anterior median eyes. Sternum convex. Abdomen higher than long, with a pattern of black spots on gray background. Only one very large palpus present.

After the penultimate molt, either palpus is twisted off by the spider (Branch, 1942). It does not regenerate.

Conductor (C on figure 59) of palpus large; radix (R) present, lying below embolus (E). Median apophysis (M) fits into paracymbial hook (P) of alveolus of cymbium (Y), holding bulb in cymbium.

Tidarren can be separated from *Achæaranea* and other theridiid genera by the difference in size between males and females, the characteristic beak shaped epigynum, the presence of a single palpus in the male, and the placement of the palpal parts.

While in most theridiid genera the shape of the median apophysis, conductor or embolus is diagnostic, these structures differ little in species of *Tidarren*. The cymbium, a conservative structure rarely modified in closely related species, differs considerably in the two species of males known.

In habits and habitat, *Tidarren* is similar to *Achæaranea tepidariorum* (Gertsch, 1949). While females are abundant, the males are rarely collected, probably because of their small size.

Although the species described in this genus are all American, Dr. G. Schmidt (in letter) told me that members of this genus occur in the North African region.

Species placed in *Tidarren* by Chamberlin and Ivie (1934) but probably belonging to *Achæaranea* are: *Theridion passivum* Keyserling, 1891, Die Spinnen Amerikas, Brasilianische Spinnen, p. 195, pl. 7, fig. 141 (♀), and *Theridion migrans* Keyserling, 1884, *ibid.*, Theridiidæ, 1: 18, pl. 1, fig. 6 (♀).

Tidarren sisyphoides (Walckenaer). Figs. 41-45, 58-60

Theridion ansatum Walckenaer, 1841, Histoire naturelle des Insectes Aptères 2: 320 (sub. *Theridium*). Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 191. Roewer, 1942, Katalog der Araneæ, 1: 501 (sub. *anasatum*). Chamberlin and Ivie, 1944, Bull. Univ. Utah, biol., ser., 8(5): 47 fig. 43 (♀).

Theridion sisyphoides Walckenaer, 1841, Histoire naturelle des Insectes Aptères, 2: 321.

Theridion fordum, Banks, 1898, Proc. California Acad. Sci., 3rd ser., 1(7): 236; 1904, *ibid.*, 3(13): 344; 1910, Bull. U. S. Natl. Mus., 72: 19. Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 196 (in part). Comstock, 1912, The Spider Book, p. 346, fig. 344 (♀). Moles and Johnson, 1921, Jour. Ent. Zool., 13: 41. Bishop and Crosby, 1926, Jour. Elisha Mitchell

Sci. Soc., 41: 182. ?Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., 30: 194, fig. 39 (♀). Chickering, 1937, in the Geology and Biology of the San Carlos Mountains, p. 274. Bryant, 1940, Bull. Mus. Comp. Zool., 86: 319. Comstock, 1940, The Spider Book, rev. ed., p. 361, fig. 344 (♀). not *T. fordum* Keyserling).

Steatoda fordai, F. O. P.—Cambridge, 1902, Biologia Centrali-Americana, Araneidea, 2: 382, pl. 36, fig. 7 (♀).

Tidarren fordum, Chamberlin and Ivie, 1933, Bull. Univ. Utah, biol. ser., 2(4): 5, figs. 1-9, 11-23 (♂ ♀). Fox, 1940, Proc. Biol. Soc. Wash., 53: 44. Chamberlin and Ivie, 1941, Bull. Univ. Utah, biol. ser., 6(3): 12. Roewer, 1942, Katalog der Araneae, 1: 508 (in part). Kraus, 1955, Abh. Senckenbergischen Naturf. Gesell., 493: 19. (not *T. fordum* Keyserling).

Tidarren sisyphoides, Chamberlin and Ivie, 1944, Bull. Univ. Utah, biol. ser. 8(5): 57. Archer, 1946, Pap. Alabama Mus. Nat. Hist., 22: 33.

FEMALE: Coloration and structure typical. Height of clypeus equals about three diameters of anterior median eyes; lower margin bulging and projecting. Abdomen without a tubercle although minute indications of it may be present. Beak of epigynum diagnostic, having posterior face swollen (figs. 44, 45). Ratio of length of carapace to first patella and tibia 10: 15 in northern specimens, 10: 19 in specimens from the southern part of the range. Total length, 5.8 to 8.6 mm. A specimen from Georgia measured: Total length, 6.2; carapace, 2.5 long, 2.2 wide. First femur, 4.5; patella and tibia, 4.0; metatarsus, 4.3; tarsus, 1.4. Second patella and tibia, 2.7; third, 2.0; fourth, 3.2.

MALE: Cymbium of palpus funnel shaped (figs. 58, 59). Total length, 1.3 to 1.4 mm. Total length of a male from Mississippi, 1.4. Carapace, 0.63 long, 0.60 wide, 0.34 high. First femur, 1.04; patella and tibia, 0.94; metatarsus, 0.78; tarsus, 0.35. Second patella and tibia, 0.66; third, 0.50; fourth, 0.67.

Type locality: Both *T. ansatum* and *T. sisyphoides* came from Georgia, and the descriptions are based on Abbot's manuscript drawings p. 15, figs. 149, 150, and p. 25, fig. 313, respectively. The manuscript is in the British Museum (Natural History).

Records: KENTUCKY: Breathitt Co.: Quicksand (S. C. Bishop). GEORGIA: (Chamberlin and Ivie, 1944); Bibb Co.; Ware Co. FLORIDIA: Gadsden Co.; Liberty Co.; Alachua Co.; Pasco Co.; Orange Co.; Highlands Co.; De Soto Co.; Dade Co. ALABAMA: (Archer, 1946); Marion Co.; MISSISSIPPI: Forrest Co.; Wilkinson

Co.; Covington Co. LOUISIANA: Saint Landry Par. TEXAS: Polk Co.; Wise Co.; Newton Co.; Montgomery Co.; Panola Co.; Hidalgo Co.; Cameron Co. ARIZONA: Santa Cruz Co.; Pima Co. CALIFORNIA: Santa Clara Co.; Monterey Co.; San Luis Obispo Co.; Los Angeles Co.; San Bernardino Co.; San Diego Co. BAJA CALIFORNIA: (Banks, 1898). NUEVO LEÓN: 15 and 25 mi. S. of Monterrey. TAMAULIPAS: Villagrán; El Mante; Jaumave; El Limón; San Carlos Mts. DURANGO: Nombre de Dios. NAYARIT: Tepic; San Blas. SAN LUIS POTOSÍ: Picolo; Pujal; Tamazuchale. HIDALGO: Chapulhuacán. DISTRÍTO FEDERAL: México. VERACRUZ: La Buena Ventura; Franca Vieja; Region del Chapo; Orizaba; Alto Lucero; Huatusco; Tiapacoyan; Jalapa; Martínez del la Torre. PUEBLA: Acatlán; Tohuacán. GUERRERO: 62 mi. N. of Acapulco. OAXACA: Oaxaca; Tolosa. CHIAPAS: La Zacualpa; Mapastepec; north of Huixtla. YUCATÁN: Chichén-Itzá. EL SALVADOR: (Kraus, 1955). COSTA RICA: San José. PANAMA: Barro Colorado Island; Forest Reserve. HAITI: in mts. 25 mi. from Aux Cayes. CUBA: (Bryant, 1940); Tapaste. PUERTO RICA: (Petrunkevitch, 1930). PERU: Dept. Piura; Quebrada Songora (D. H. Frizzell).

Tidarren mixtum (O. P.—Cambridge). Figs. 40, 46–48

Theridion mixtum O. P.—Cambridge, 1896, *Biologia Centrali-Americana*, Araneidea, 1: 206, pl. 24, fig. 11 (♂). Petrunkevitch, 1911, *Bull. Amer. Mus. Nat. Hist.*, 29: 200. Chickerling, 1936, *Trans. Amer. Micros. Soc.*, 55: 451. Banks, 1902, *Proc. Washington Acad. Sci.*, 4: 59 (a doubtful record). Reimoser, 1939, *Ann. Naturhist. Museum, Wien*, 50: 346.

Steatoda mixta, F. O. P.—Cambridge, 1902, *Biologia Centrali-Americana*, Araneidea, 2: 383, pl. 36, fig. 8 (♀).

Tidarren mixtum, Chamberlin and Ivie, 1934, *Bull. Univ. Utah, biol. ser.*, 2(4): 9, figs. 26–27 (♂). Roewer, 1942, *Katalog der Araneæ*, 1: 508.

FEMALE: Coloration of abdomen with little contrast, usually dark with indistinct stripes. Abdomen hairy, usually with a large tubercle (fig. 40). Area posterior to epigynal beak sclerotized (figs. 46, 47). Legs short. Ratio of length of carapace to first patella and tibia 10: 14 to 10: 15. Total length, 4.5 to 5.5 mm. A female from Guatemala measured: Total length, 5.0; carapace, 1.87 long, 1.61 wide. First femur, 2.82; patella and tibia, 2.62; metatarsus, 2.08; tarsus, 0.75. Second patella and tibia, 1.90; third, 1.43; fourth, 2.24.

Type locality: Female holotype from Chiacam, Guatemala (Sargent) in the British Museum (Natural History).

Records: SAN LUIS POTOSÍ: Tamazunchale; Río Frío. VERACRUZ: La Buena Ventura. GUERRERO: Acapulco. CHIAPAS: Tonalá; Tapachula. GUATEMALA: San Jerónimo. COSTA RICA: (Reimoser, 1939); San José. GALAPAGOS ISLANDS: (Banks, 1902, a doubtful record).

Tidarren fordum (Keyserling). *Figs. 49-57, 61-64

Theridion fordum Keyserling, 1884, Die Spinnen Amerikas, Theridiidae 2: 382, pl. 1, fig. 9 (♀). Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 196 (in part). Banks, 1929, Bull. Mus. Comp. Zool. 69: 84. Mello-Leitão, 1947, Arq. Paranense, 6: 237. Reimoser, 1939, Ann. Naturhist. Museum, Wien, 50: 346.

Theridion elevatum Banks, 1897, Canad. Ent., 29: 195; 1898, Proc. California Acad. Sci., 1(7): 237. (sub. *Theridium*, not *T. elevatum* Thorell, 1881). New synonymy.

Steatoda elevata, F. O. P.—Cambridge, 1902, Biologia Centrali-Americana, Araneida, 2: 387. New synonymy.

Theridion fordulum Banks, 1909, Proc. Acad. Nat. Sci. Philadelphia, 61: 203. (sub. *Theridium*). Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 196. Roewer, 1942, Katalog der Araneæ, 1:493. New synonymy.

Theridion texanum Banks, 1910, Bull. U. S. Natl. Mus., 72: 20. (sub. *Theridium*, new name for *elevatum*, preoccupied). Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 208. Roewer, 1942, Katalog der Araneæ, 1: 499. New synonymy.

Tidarren minor Chamberlin and Ivie, 1934, Bull. Univ. Utah, biol. ser. 2(4): 10, figs. 10, 24-25 (♀). Fox, 1940, Proc. Biol. Soc. Washington, 53: 44. Roewer, 1942, Katalog der Araneæ, 1: 508. Chamberlin and Ivie, 1944, Bull. Univ. Utah, biol. ser., 8(5): 57. Archer, 1946, Pap. Alabama Mus. Nat. Hist., 22: 33; 1950, *ibid.*, 30: 15, pl. 2, fig. 2 (♂). New synonymy.

Tidarren fordum, Mello-Leitão, 1940, Rev. Mus. La Plata (n. s.) 2: 34. Roewer, 1942, Katalog der Araneæ; 1: 508 (in part). Mello-Leitão, 1943, Arq. Mus. Nac., Rio de Janeiro, 37: 171.

?*Tidarren sisypoides*, Mello-Leitão, 1945, Rev. Mus. La Plata (n. s.) 4: 216 (prob. not *T. sisypoides* Walckenaer).

* South American references incomplete.

Tidarren mixtum, Kraus, 1955, Abh. Senckenbergischen Naturf. Gesell., 493: 19. (not *T. mixtum* O. P.—Cambridge).

FEMALE: Coloration and structure typical. Height of clypeus equals two and one-half to three diameters of anterior median eyes. Abdominal tubercle lacking or very small. Epigynum of variable shape, only beak and a small area anterior to it are sclerotized (figs. 49–57). Total length of females, 2.4–7.0 mm. A female from Baños, Ecuador, measured 5.0, total length. Carapace, 2.16 long, 1.87 wide. First femur, 4.2; patella and tibia, 3.7; metatarsus, 3.7; tarsus, 1.4. Second patella and tibia, 2.4; third, 1.8; fourth, 3.0. Total length of a specimen from Texas, 3.7. Carapace, 1.25 long, 1.08 wide. First femur, 1.92; patella and tibia, 1.60; metatarsus, 1.53; tarsus, 0.71. Second patella and tibia, 1.04; third, 0.83; fourth, 1.53.

MALE: Cymbium of palpus rounded (figs. 61–63). Total length, 0.9–1.4 mm. (largest specimens from California). Total length of a specimen from Baños, Ecuador, 1.2 mm. Carapace, 0.55 long, 0.54 wide. First femur, 0.91; patella and tibia, 0.78; metatarsus, 0.60; tarsus, 0.41. Second patella and tibia, 0.53; third, 0.41; fourth 0.58. Total length of a specimen from Texas, 1.1. Carapace, 0.52 long, 0.39 wide. First femur, 0.69; patella and tibia, 0.65; metatarsus, 0.49; tarsus, 0.37. Second patella and tibia, 0.46; third, 0.34; fourth, 0.52.

Although the difference in size of males is small, females from Mexico and the United States measured between 2.4 and 4.5 mm. those of Central and South America 4.5 to 7.0 mm. The ratio of length of carapace to first patella and tibia is 10:13 in the United States, 10:15 in southern Mexico, 10:19 in some specimens of northern Central America, 10:17 in more southern specimens. Hardly two specimens have the epigynum or internal genitalia similar.

Type locality: Female types of *Theridion fordum* from Santa Fé de Bogotá, Columbia. Female holotype of *T. elevatum* from Brazos County, Texas, and female holotype of *Theridion fordulum* Banks from Chirral Paraíso, Costa Rica in the Museum of Comparative Zoology. Female holotype of *T. minor* from Tallahassee, Leon County, Florida, Aug. 1933 (W. Ivie) in the collection of the University of Utah.

Records: FLORIDA: (Chamberlin and Ivie, 1934); (Fox, 1940); Lee Co. ALABAMA: (Archer, 1946); Baldwin Co. MISSISSIPPI: (Archer, 1946). TEXAS: Liberty Co.; Hidalgo Co. ARIZONA: Huachuca Mts. CALIFORNIA (Chamberlin and Ivie, 1934); San Diego Co. TAMAULIPAS: Tampico. SAN LUIS POTOSÍ: Tamazunchale. NAYARIT: (Banks, 1898). GUERRERO: km. 100 road to

Taxco; Acapulco. OAXACA: San Gerónimo. CHIAPAS: Mapastepec. YUCATÁN: Dry Cenote, Chichén-Itzá. QUINTANA ROO: Esmeralda, 45 km. S. of Peto, Yucatán. GUATEMALA: Chichicastenango. EL SALVADOR: (Kraus, 1955); San Salvador. COSTA RICA: (Reimoser, 1939); San José. PANAMA: Summit; France Field; Forest Reserve; Boca Toro; Balboa; Experimental Gardens; Barro Colorado Island. ECUADOR: I. de Puná; nr. Arenillas. Prov. Tungurahua: Puñapi. Baños. PERU: Dept. Junín; Huacapistana. Dept. Loreto: Río Topo. Quillabamba, Valle Urubamba, 1100 m. BRAZIL: numer. coll. nr. Rio de Janeiro, São Paulo, Teresópolis. PARANÁ: (Mello-Leitão, 1947). Rio Grande do Sul (Mello-Leitão, 1943). URUGUAY: (Mello-Leitão, 1943). ARGENTINA: Corrientes: (Mello-Leitão, 1945). Provincia de Buenos Aires (Mello-Leitão, 1948).

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- BRANCH, J. H. 1942. A spider which amputates one of its palpi. Bull. South. California Acad. Sci. **41**: 139-140.
 GERTSCH, W. J. 1949. American Spiders. New York.

(Continued from page 58)

MEETING OF FEBRUARY 3, 1953

A regular meeting of the Society was held at the American Museum of Natural History; President Clausen in the chair. There were nine members and seven guests present. The minutes of the preceding meeting were accepted as read. The Secretary announced the death of Mr. Nathan Banks, one of America's oldest and most distinguished entomologists, and a long time honorary member of the New York Entomological Society. It was announced that descriptive circulars and membership blanks for the Society were available from the Secretary. The President announced the illness of Dr. Hagan to the Society. The President appointed a program committee to consist of Drs. Vishniac and Pohl.

Dr. Vishniac introduced the speakers on the topic of the evening—"The Breeding of Lepidoptera". He said our speakers represented the experience of old age—Mr. Fred Naumann—and the enthusiasm of the younger generation—Mrs. Hopf.

Mrs. Hopf spoke of her breeding work on the Monarch Butterfly and showed an inexpensive breeding case of new design. Mr. Naumann had six double-pinned boxes of butterflies and moths, exotic and domestic, which he used to illustrate his experiences.

The meeting adjourned at 9:30 P.M.

LOUIS S. MARKS, *Secretary*

(Continued on page 82)

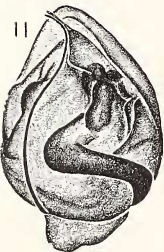
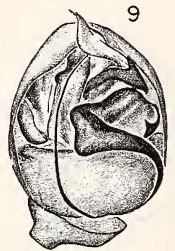
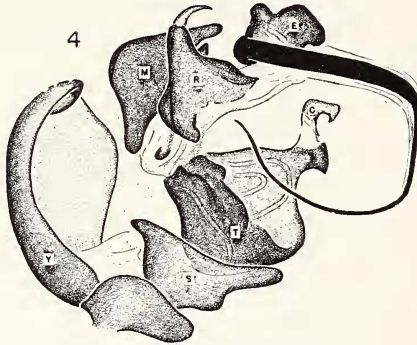
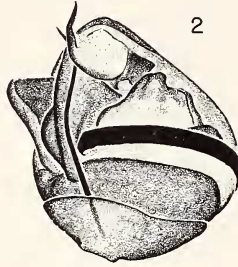
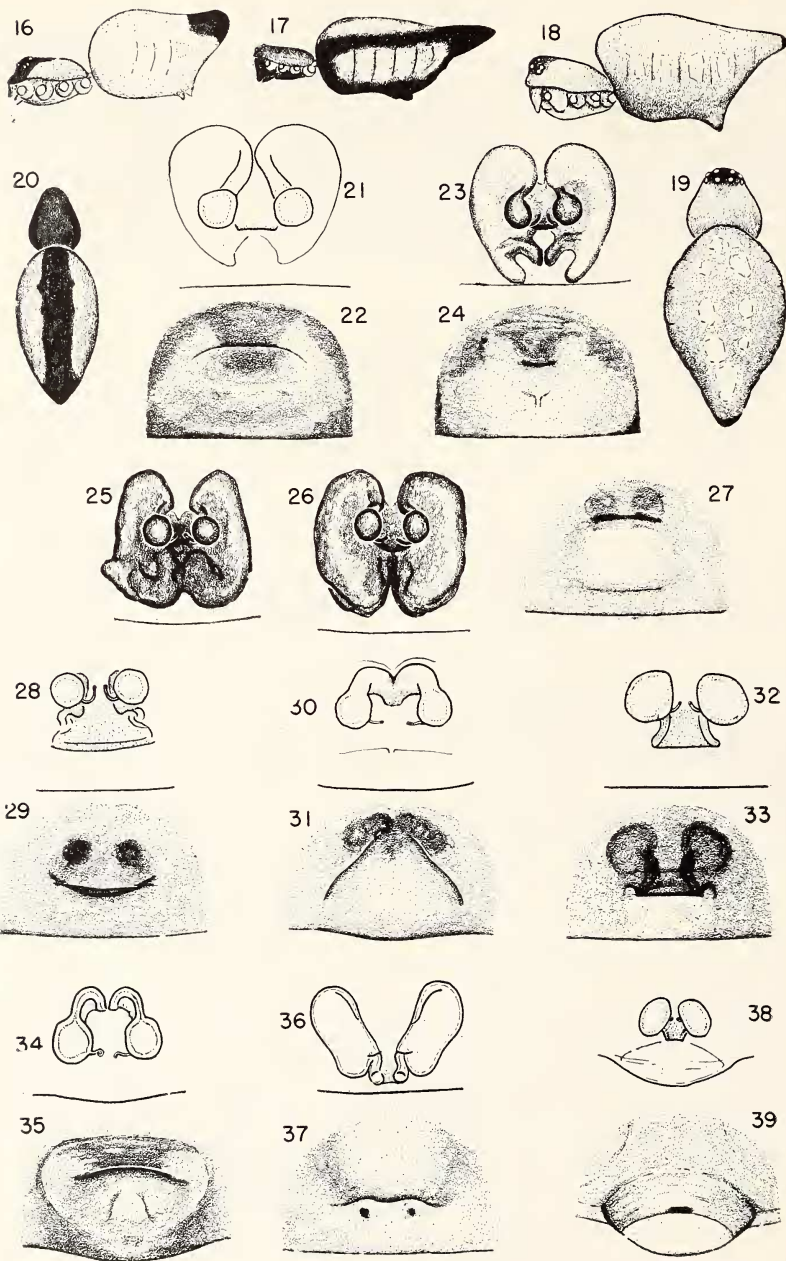


PLATE V

- Figs. 1-4. *Chryso albomaculata* O. P.—Cambridge, left palpus. 1-3. Ventral view, showing variation. 4. Subventral view, expanded.
- Figs. 5-6. *C. vexabilis* Keyserling, palpus. 5. Ventral view. 6. Radix and median apophysis.
- Figs. 7-8. *C. vallensis*, new species. 7. Palpus. 8. Female. Fig. 9. *C. diplosticha* Chamberlin and Ivie, palpus.
- Fig. 10. *C. ecuadorensis*, new species, female.
- Figs. 11-12. *C. indicifer* Chamberlin and Ivie. 11. Palpus. 12. Abdomen of male, dorsal view.
- Fig. 13. *C. sulcata* (Keyserling), palpus.
- Fig. 14. *C. sicki*, new species, abdomen of female, dorsal view.
- Fig. 15. *C. marie*, new species, palpus.
- Abbreviations: C, conductor; E, embolus; M, median apophysis; R, radix; S, subtegulum; T, tegulum; Y, cymbium.

PLATE VI

- Fig. 16. *Chryso nigriceps* Keyserling, female.
- Fig. 17. *C. indicifer* Chamberlin and Ivie, female.
- Figs. 18-19. *C. albomaculata* O. P.—Cambridge, female.
- Figs. 20-22. *C. huanuco*, new species. 20. Female. 21. Female genitalia, dorsal view. 22. Epigynum.
- Figs. 23-24. *C. vexabilis* Keyserling. 23. Female genitalia, dorsal view. 24. Epigynum.
- Figs. 25-27. *C. albomaculata* O. P.—Cambridge. 25-26. Female genitalia, dorsal view. 27. Epigynum.
- Figs. 28-29. *C. vallensis*, new species. 28. Female genitalia, dorsal view. 29. Epigynum.
- Figs. 30-31. *C. diplosticha* Chamberlin and Ivie. 30. genitalia, dorsal view. 31. Epigynum.
- Figs. 32-33. *C. nigriceps* Keyserling. 32. Female genitalia, dorsal view. 33. Epigynum.
- Figs. 34-35. *C. indicifer* Chamberlin and Ivie. 34. Female genitalia, dorsal view. 35. Epigynum.
- Figs. 36-37. *C. sicki*, new species. 36. Female genitalia, dorsal view. 37. Epigynum.
- Figs. 38-39. *C. ecuadorensis*, new species. 38. Female genitalia, dorsal view. 39. Epigynum.



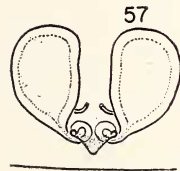
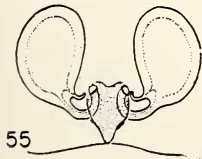
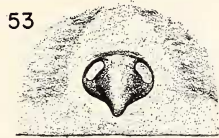
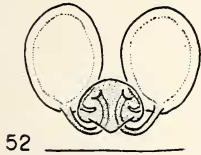
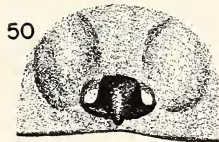
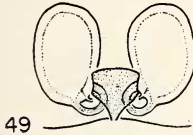
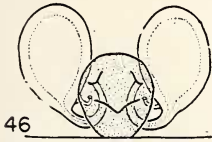
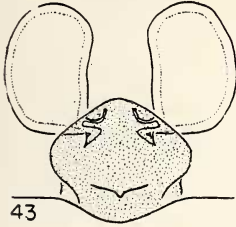
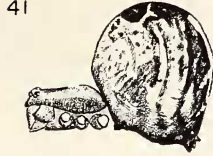


PLATE VII

- Fig. 40. *Tidarren mixtum* (O. P.—Cambridge), female.
Figs. 41–45. *T. sisypoides* (Walckenaer). 41–42. Female. 43–45. Epigynum. 43. Cleared. 44. Ventral view. 45. Lateral view.
Figs. 46–48. *T. mixtum* (O. P.—Cambridge), epigynum. 46. Cleared. 47. Ventral view. 48. Lateral view.
Figs. 49–57. *T. fordum* (Keyserling), epigynum. 49, 52, 55, 60. Cleared. 50, 53, 56. Ventral view. 51, 54. Lateral view.

PLATE VIII

- Figs. 58–60. *Tidarren sisypoides* (Walckenaer), left palpus. 58. Ventral view. 59. Expanded, ventral view. 60. Ectal view.
Figs. 61–64. *T. fordum* (Keyserling), palpus. 61–63. Ventral view. 61. Ecuador. 62. Panama. 63. Texas. 64. Ectal view, Texas.
Abbreviations: C, conductor; E, embolus; M, median apophysis; P, paracymbial hook; R, radix; S, subtegulum; T, tegulum; Y, cymbium.

Map showing the distributions of *Chrysso albomaculata*, *Tidarren sisypoides*, *T. mixtum* and *T. fordum*.

